

What is claimed is:

- 1 1. A method comprising
2 receiving a request to remove a hot plug module from a running computing
3 device; and
4 updating a snoop filter of the running computing device to cease snooping of the
5 hot plug module.
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- 1 2. The method of claim 1 wherein updating comprises updating the snoop filter to
2 indicate that the hot plug module is no longer a valid snooping agent.
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- 1 3. The method of claim 1 wherein updating comprises updating a valid vector to
2 indicate that the hot plug module is not a valid snooping agent.
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- 1 4. The method of claim 1 wherein updating comprises disabling the snoop filter
2 associated with the hot plug module.
- 1 5. The method of claim 1 wherein updating comprises marking all cache lines tracked
2 by the snoop filter as not being present in the hot plug module.
- 1 6. The method of claim 1 wherein updating comprises updating presence vectors to
2 indicate that associated cache lines are not present in the hot plug module.
- 1 7. A midplane comprising

2 a plurality of couplers to detachably couple hot plug modules to a running
3 computing device; and
4 a switch to interconnect the plurality of couplers and to cease issuing snoop
5 transactions to a coupler of the plurality of couplers associated with a hot plug module
6 to be removed from the running computing device.

1 8. The midplane of claim 7 wherein the switch causes the hot plug module to be
2 removed to write modified cache lines to a memory of the running computing device.

1 9. The midplane of claim 7 wherein
2 the switch comprises a valid vector, and
3 the switch issues snoop transactions only to couplers that the valid vector
4 indicates are associated with valid snooping agents.

1 10. The midplane of claim 7 wherein
2 the switch comprises presence vectors associated with cache lines of the hot
3 plug module to be removed, and
4 the switch updates the presence vectors to indicate that the hot plug module
5 does not have copies of the associated cache lines.

1 11. The midplane of claim 7 wherein
2 the switch comprises a different snoop filter for each coupler of the plurality of
3 couplers, and
4 the switch disables the snoop filter for the coupler associated with the hot plug
5 module to be removed.

1 12. The midplane of claim 7 further comprising another switch to interconnect the
2 plurality of couplers, wherein the switches collectively track states of cache lines of hot
3 plug modules coupled to the couplers and cease to issue snoop transactions to the
4 coupler associated with the hot plug module to be removed.

1 13. A machine readable medium processing snoop transactions comprising a plurality
2 of instructions that in response to being executed result in a computing device
3 causing caching agents associated with a coupler of the computing device to
4 write back modified lines to a memory of the computing device; and
5 updating a valid vector to indicate that the coupler is no longer associated with
6 one or more valid caching agents.

1 14. The machine readable medium of 13, wherein the plurality of instructions in
2 response to being executed further result in the computing device
3 updating the valid vector in response to a hot plug removal request.

1 15. The machine readable medium of 14, wherein the plurality of instructions in
2 response to being executed further result in the computing device
3 updating the valid vector to indicate that another coupler of the computing device
4 is now associated with one or more valid caching agents in response to a hot plug
5 addition request.

1 16. The machine readable medium of 15, wherein the plurality of instructions in
2 response to being executed further result in the computing device

clearing a bit of the valid vector that is associated with the coupler to indicate that the coupler is no longer associated with one or more valid caching agents, and setting another bit of the valid vector that is associated with the another coupler to indicate that the another coupler is associated with one or more valid caching agents.

17. A computing device comprising,
a memory,
a hot plug module comprising a coupler and one or more caching agents having cached lines of the memory;
a midplane comprising a coupler detachably coupled the coupler of the hot plug module and a snoop filter to track the cached lines of the one or more caching agents;
and
a processor coupled to the hot plug module via the midplane, the processor to cause the snoop filter to mark the one or more caching agents as invalid snooping agents in response to a request to remove the hot plug module.

18. The computing device of claim 17, wherein
the hot plug module comprises a mechanism to generate the request to remove the hot plug module.

19. The computing device of claim 17, wherein the memory comprises a plurality of instructions that in response to being executed result in the request to remove the hot plug module being generated.

- 1 20. The computing device of claim 17, wherein the one or more caching agents
2 comprises a processor and one or more associated memory caches.
- 1 21. The computing device of claim 17, wherein the one or more caching agents
2 comprises an input/output hub and one or more associated memory caches.
- 1 22. A snoop filter comprising
2 storage to store coherency information for lines cached by caching agents of hot
3 plug modules; and
4 a controller to update the coherency information in response to a request to
5 remove a hot plug module from a computing device.
- 1 23. The snoop filter of claim 22 wherein the controller further updates the coherency
2 information in response to a request to add a hot plug module to the computing device.
- 1 24. The snoop filter of claim 22 wherein the controller updates the coherency
2 information to indicate that the hot plug module is no longer a valid snooping agent in
3 response to the request to remove the hot plug module.
- 1 25. The snoop filter of claim 22 wherein the controller updates a valid vector of the
2 coherency information to indicate that the hot plug module is no longer a valid snooping
3 agent in response to the request to remove the hot plug module.
- 1 26. The snoop filter of claim 22 wherein the controller updates the coherency
2 information by marking all tracked cache as not being present in the hot plug module in
3 response to the request to remove the hot plug module.

- 1 27. The snoop filter of claim 22 wherein the controller updates the coherency
- 2 information by updating presence vectors to indicate that associated cache lines are not
- 3 present in the hot plug module in response to the request to remove the hot plug
- 4 module.